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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/050,236 | 01/15/2002 | Dimitar V. Dimitrov | 169.12-0526 | 6372 |
| 164 7590 12/31/2007 KINNEY & LANGE, P.A. THE KINNEY & LANGE BUILDING 312 SOUTH THIRD STREET MINNEAPOLIS, MN 55415-1002 | | | EXAMINER TUGBANG, ANTHONY D | |
| | | | ART UNIT 3729 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/050,236

Applicant(s)

DIMITROV ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-18 is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8 and 21 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 22-32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on October 2, 2007 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bharthulwar 5,847,904.

Bharthulwar discloses a method of making a MR reader comprising: first defining a stripe height back edge (back edge of MR layer active region 24) by forming a magnetoresistive sensor (e.g. 22 in Fig. 2C) of the MR reader; and then subsequently defining a physical reader width ("track width" – TW) of the magnetoresistive sensor by forming current contacts (e.g. conductors 34, 36) over the magnetoresistive sensor as the reader width (e.g. TW) is not defined until the current contacts are formed over the magnetoresistive sensor and the distance is set between the current contacts (e.g. 34, 36, col. 4, lines 35-55).

It is noted that the "stripe height" is defined as the width of the MR layer active region 24 perpendicular to the easy axis (e.g. 54). Thus, the stripe height back edge is defined as the back edge of the MR layer active region 24.

Claim Rejections - 35 USC § 103

4. Claims 2 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharthulwar in view of Fontana et al 6,609,948.

Bharthulwar discloses the claimed manufacturing method as relied upon in Claim 1 above. Bharthulwar does not teach that the step of defining the stripe height back edge of the magnetoresistive sensor further comprises: depositing a plurality of sensor layers, selectively patterning a first photoresist layer on the magnetoresistive sensor layers, the first photoresist layer leaving exposed a first region of the magnetoresistive sensor layers; removing the exposed first region of the magnetoresistive sensor layers; and removing the first photoresist layer.

Fontana shows a patterning process that includes depositing magnetoresistive sensor layers (e.g. 206, Fig. 4 and block 300 of Fig. 13), or a stack of sensor layers; selectively patterning a first photoresist layer (e.g. 230, 232) on the magnetoresistive sensor layers (Fig. 11A and 11B), the first photoresist layer leaving exposed a first region of the magnetoresistive sensor layers; removing the exposed first region (e.g. region of layers 206 outside of 230, 232) of the magnetoresistive sensor layers (col. 6, lines 45-60); and removing the first photoresist layer (see Fig. 11C).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have defined the stripe height back edge of Bharthulwar by utilizing the patterning process of Fontana, to provide a highly accurate means of defining the stripe height of the magnetoresistive sensor between the stripe height back edge and the ABS.

5. Claims 6 through 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharthulwar in view of Shouji et al 5,722,157.

Bharthulwar discloses the claimed manufacturing method as relied upon in Claim 1 above, further including forming current contacts. Bharthulwar does not teach that the current contacts are formed by depositing them adjacent opposite edges of the magnetoresistive sensor, depositing a gap layer on the current contacts and the magnetoresistive sensor; and depositing a top shield on the gap layer.

Shouji shows a composite head forming process that includes: depositing current contacts (e.g. 30, 31 in Fig. 8D) adjacent opposite edges of the magnetoresistive sensor (e.g. 28); depositing a gap layer (e.g. 32 in Fig. 8E) on the current contacts and the magnetoresistive sensor; and depositing a top shield (e.g. 34 in Fig. 8F) on the gap layer (all of which is discussed at col. 6, lines 53-67). The purpose of the composite head forming process of Shouji allows a magnetic head to be formed with a magnetoresistive sensor and an induction magnetic head so that the overall magnetic head can read information and record information (col. 1, lines 15-21 and col. 6, lines 29-33).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Bharthulwar by utilizing the composite head forming process of Shouji, to positively form a magnetic head that can both read and record information.

Response to Arguments

6. Applicant's arguments filed on October 2, 2007 have been fully considered but they are not persuasive. The applicant(s) argue that the prior art does not teach a "physical reader width". The examiner traverses in that the reader width of Bharthulwar is physical to the extent that is

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must exist in order for the magnetoresistive reader to operate. Furthermore, the physical reader width is not defined until the current contacts are formed over the MR sensor.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. the back edge of the MR sensor and the two side edges of the MR sensor) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, in at least Claim 1, there is no recitation that it is the two side edges that define the physical reader width. So it appears that the applicant(s) are arguing much more specifically than what is claimed.

Allowable Subject Matter

7. Claims 9 through 18 are allowed.
8. Claims 3 through 5 and 22 through 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729**

December 26, 2007